

III. REMARKS

With the above amendments, the specification has been amended to add Section Headings.

Claims 43 and 46 have been canceled without prejudice. Claims 17-21 and 45 have been amended, and new independent claims 47 and 48 have been added. In particular, claim 17 has been amended to add clarity by improving grammar, punctuation and form. Claim 17 has not been amended for a reason relating to patentability, and the present amendment has no further limiting effect on the scope of this claim. Likewise, claims 18-21 and 45 have been amended to add clarity by improving grammar, punctuation and/or form. Claims 18-21 and 45 have not been amended for any reason relating to patentability, and the present amendment has no further limiting effect on the scope of this claim.

New independent claim 47 corresponds to previous claim 43 rewritten in independent form, incorporating the base claim and any intervening claims. Therefore, the scope of new independent claim 47 is the same as that of previous claim 43.

New independent claim 48 corresponds to previous claim 46 rewritten in independent form, incorporating the base claim and any intervening claims. Therefore, the scope of new independent claim 48 is the same as that of previous claim 46.

The present amendment adds no new matter to the above-captioned application.

A. The Invention

The present invention relates broadly to a device for detecting crossing of a horizontal lane demarcation mark of a carriageway for motor vehicles, such as may be installed in a motor vehicle to detect when the motor vehicle crosses a marker line on the road. In accordance with an embodiment of the present invention, a device for detecting crossing of a horizontal lane demarcation mark of a carriageway for motor vehicles is provided that

includes the limitations recited by independent claim 17. In accordance with another embodiment of the present invention, a device for detecting crossing of a horizontal lane demarcation mark of a carriageway for motor vehicles is provided that includes the limitations recited by independent claim 47. In accordance with yet another embodiment of the present invention, a device for detecting crossing of a horizontal lane demarcation mark of a carriageway for motor vehicles is provided that includes the limitations recited by independent claim 48. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the various embodiments, in accordance with the present invention, is that by regrouping master and slave means for projecting two light beams onto a carriageway of a vehicle in two distinct zones, system wiring can be simplified thereby cutting manufacturing costs.

B. Claim Objections

The Examiner objects to claims 22 and 23 on the grounds that the “revolution lenses” recited in these claims should be --spherical-- lenses (Office Action, dated July 7, 2006, at 2, lines 5-9). Applicants respectfully traverse the Examiner’s objection to claims 22 and 23 for the following reasons.

There is no translation error in these claims. Applicants intend to claim “revolution lenses” in claims 22 and 23. Indeed, the term “revolution lenses” is more general than the term “spherical lenses” because a “revolution lens” means that the optical axis of such a lens defines a revolution axis of the lens (See Applicant’s Specification, at 6, lines 19-25). In other words, a person of ordinary skill in the art would realize that a “revolution lens,” in accordance with the present invention, is a lens that keeps the same properties with respect to incoming light whichever angle it is rotated around its optical axis. A spherical lens is one

type of revolution lens. On the other hand, a frusto-conical lens, which is not a spherical lens, is also a revolution lens. A surface of revolution is defined by rotating a segment or generatrix over 360°.

C. The Rejections

Claims 17-46 stand rejected under 35 U.S.C. § 103 as unpatentable over Persson (U.S. Patent 5,225,827, hereafter the “Persson Patent”) in view of Ross (U.S. Patent Application Publication No. US 2002/0175813, hereafter the “Ross Publication”) and Applicants’ Admitted Prior Art (See Specification, at 1, lines 30-35, hereafter, the “AAPA”).

Applicants respectfully traverse the rejection and request reconsideration of the above-captioned application for the following reasons.

D. Applicants’ Arguments

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation to combine the references to produce the claimed invention. In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992); In re Vaeck, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). In the present case, the Examiner has failed to establish a prima facie case of obviousness against the instant claims because the teachings of the Persson Patent, the Ross Publication and the AAPA are insufficient to teach each and every element of the claimed invention.

Applicants also point out that the Examiner has mischaracterized the outstanding Section 103 rejection. Applicants contend that the Examiner’s rejection pertains to the combined teachings of the Persson Patent, the Ross Publication and the AAPA, and not solely

to the combined teachings of the Persson Patent and the Ross Publication (See Office Action, dated July 7, 2006, at 3, lines 1-16).

i. The Persson Patent

The Persson Patent teaches a “warning device in a motor vehicle for detection of unintentional change of course,” such as shown in Figures 2, 4 and 5, wherein existing white road lines are scanned by two detectors (A) mounted far out in the front right and front left sides of the bumper of a vehicle (See Abstract). The Persson Patent teaches that IR transmitting diodes (1) located in detectors are fed from a transmitting unit of an electronic unit mounted in the vehicle with pulsed signal voltage, and the light emitted from the IR diode (1) is reflected by lines (10) of the roadway (11) to an IR receiving diode (12) also mounted in the detector (A), (See Abstract). Persson further teaches that the signal voltage received by the IR receiving diode (12) is connected to two receiving parts mounted in the electronic unit, one for the right side and one for the left side of the vehicle, for conversion into an acoustic or an optical warning signal to the driver (See Abstract).

According to the Persson Patent, detector unit (A) includes two metal tubes, (5) and (15), in which are respectively joined a transmitting diode (1), a reflector (2) and a holder (3), on the one hand, and a receiving diode (12) and a holder (13) on the other hand (col. 3, lines 25-30, and Figure 4). The two detector units (A) share a common transmitter as shown in Figure 5.

As admitted by the Examiner, the Persson Patent does not teach, or even suggest, (1) “at least one box...enclosing master and slave means for projecting two light beams” and (2) “distinct means for picking up each of the two light beams...” as recited by independent claims 17, 47 and 48.

In other words, the Persson Patent does not describe, or suggest, “master and slave means for projecting two light beams.” As evident from Figure 5, the two units (A) only share a transmitter of an electronic circuit, but they do not communicate with one another. Applicants emphasize that, in the technical field of the invention, a master unit, as well as a slave unit, each comprise a light projector and a light detector with the master unit controlling the slave unit, and determine, for example, the moment at which the slave unit must emit light, in particular, for better detection resolution. Thus, the Persson Patent does not teach, or suggest, enclosing “master and slave means...” in a single box as recited in independent claims 17, 47 and 48 of the present application.

The Examiner also admits that the Persson Patent does not teach, or suggest, (3) the “at least one box, exhibiting a general axis of symmetry encloses i. a single light source emitting a primary light beam in the direction of the carriageway; ii. at least one photo-sensor for detecting the light after reflection on the carriageway; iii. two first optical devices whose optical axes are inclined at a first value with respect to the general axis of symmetry of the box, each of the two first optical devices disposed on a path of the primary light beam as the primary light beam exits the optical source so as to split said primary light beam into two secondary light beams projected onto the carriageway in two distinct zones; and iv. two second optical devices whose optical axes are inclined at a second value with respect to the general axis of symmetry of the box are disposed on the path of the secondary light beams after the secondary light beams have been reflected onto the carriageway and before the secondary light beams reach the at least one photo-sensor” as recited in claim 18, (4) the “at least one box, exhibiting a general axis of symmetry encloses i. two light sources each emitting a light beam in the direction of the carriageway; ii. at least one photo-sensor for detecting the light after reflection on the carriageway; iii. two first optical devices whose optical axes are inclined at a first value with respect to the general axis of symmetry of the

box, each one of the first two optical devices disposed on a path of one of the light beams as the one light beam exits the corresponding optical source so as to project said two light beams onto the carriageway in two distinct zones; and iv. two second optical devices whose optical axes are inclined at a second value with respect to the general axis of symmetry of the box are disposed on the path of the light beams after the light beams have been reflected onto the carriageway and before the light beams reach the at least one photo-sensor” as recited in claim 19, (5) “wherein the light sources and the photo-sensors are mounted by SMD or flip-chip on a printed circuit board” as recited in claims 42 and 43, and (6) “wherein the first two optical devices and the second two optical devices include a screen disposed obliquely in front of the light sources and pierced with a hole” as recited in claims 45 and 46 (Office Action, dated July 7, 2006, at 3, line 17, to at 4, line 2, and at 4, lines 15-17, and at 4, line 20, to at 5, line 2).

ii. The Ross Publication

The Ross Publication teaches an “optical highway line detector,” as shown in Figure 12, wherein three photodetectors (125), (126), (127), are in light communication through lightguide (128) with light collectors (129), (130), (131) mounted in a motor vehicle rear view mirror cavity by mounting plate (133) so that light reflected by a highway surface on which the vehicle is traveling can be detected (paragraph [0050]). The Ross Publication also teaches that by increasing the number of photodetectors, lateral drift can be detected (paragraph [0050]). However, the Ross Publication does not teach, or suggest, two light sources and two photodetectors in a single box where one light source and photodetector pair is a master unit and the other light source and photodetector pair is a slave unit.

In other words, the Ross Publication does not teach, or even suggest, “master and slave means for projecting two light beams” and “at least one box...enclosing master and slave means for projecting two light beams” as recited by independent claims 17, 47 and 48.

As admitted by the Examiner, the Ross Publication also does not teach, or suggest, the subject matter recited by claims 18, 19, 42, 43, 45 and 46 (Office Action, dated July 7, 2006, at 3, line 17, to at 4, line 2, and at 4, lines 15-17, and at 4, line 20, to at 5, line 2).

iii. Applicants’ Admitted Prior Art (AAPA)

Applicants’ Admitted Prior Art, on page 1, lines 30-35, of the specification as originally filed, teaches an active security system that includes a multiplicity of infrared transmitters associated with photo-sensors and disposed under the front bumper face-bars of the motor vehicle, wherein each sensor of this system is formed of a master box comprising a transmitter and a receiver, and a slave box also formed of a transmitter and a receiver, which enables the electronics to be shared so as to be able to phase shift transmissions and prevent cross-talk of the sensors.

However, the AAPA does not teach, or suggest, “at least one box...enclosing master and slave means for projecting two light beams” as recited by independent claims 17, 47 and 48.

As conceded by the Examiner, the AAPA also does not teach, or suggest, the subject matter recited by claims 18, 19, 42, 43, 45 and 46 (Office Action, dated July 7, 2006, at 3, line 17, to at 4, line 2, and at 4, lines 15-17, and at 4, line 20, to at 5, line 2).

iv. Summary of the Teachings

Because neither the Persson Patent, the Ross Publication nor the AAPA teach, or suggest, “at least one box...enclosing master and slave means for projecting two light beams”

as recited by independent claims 17, 47 and 48 of the present application, Applicants have shown that the Examiner has not established a prima facie case of obviousness against any of the claims of the above-captioned application. In addition, neither the Persson Patent, the Ross Publication nor the AAPA teach, or suggest, the subject matter of claims 18, 19, 42, 43, 45 and 46 as conceded by the Examiner (Office Action, dated July 7, 2006, at 3, line 17, to at 4, line 2, and at 4, lines 15-17, and at 4, line 20, to at 5, line 2). Consequently, the Examiner has failed to establish a prima facie case of obviousness against these claims for additional reasons.

v. Claims 18, 19, 42, 45, 47 and 48

The Examiner concedes that neither the Persson Patent, the Ross Publication nor the AAPA teach or suggest the subject matter recited by claims 18, 19, 42, 43, 45 and 46 (Office Action, dated July 7, 2006, at 3, line 17, to at 4, line 2, and at 4, lines 15-17, and at 4, line 20, to at 5, line 2). New independent claims 47 and 48 correspond, respectively, to previous claims 43 and 46; therefore, neither the Persson Patent, the Ross Publication nor the AAPA teach, either alone or in combination, the subject matter of claims 47 and 48.

Instead, the Examiner makes the naked assertion that it would have been obvious to a person of ordinary skill in the art to have modified the combined teachings of the Persson Patent, the Ross Publication and the AAPA to arrive at Applicants' invention because all that is further required is to apply structures that are "well known" and/or are an "obvious design choice" (Office Action, dated July 7, 2006, at 3, line 17, to at 4, line 2, and at 4, lines 15-17, and at 4, line 20, to at 5, line 2).

Applicants' remind the Examiner that the Administrative Procedure Act requires that the Examiner's rejections employ "reasoned decision making" based on evidence from a fully developed administrative record. In re Lee, 61 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 2002).

Patentability determinations that are based on what the Examiner believes is “basic knowledge” and “common sense,” and that otherwise lacks substantial evidentiary support, are impermissible. In re Zurko, 59 U.S.P.Q.2d 1693, 1697 (Fed.Cir. 2001). Therefore, Applicants’ respectfully traverse the Examiner’s Section 103 rejection of claims 18, 19, 42, 45, 47 and 48 on the ground that it lacks “substantial evidentiary support.” Therefore, the Examiner must now adduce substantial evidentiary support (e.g., produce a prior art reference) with respect to the subject matter claimed, or withdraw the Section 103 rejection standing against claims 18, 19, 42, 45, 47 and 48.

To the extent that any of the Examiner’s rejections of the other claims in the above-captioned application are based on what the Examiner contends is “well known” or “basic knowledge” or “common sense,” Applicants object and respectfully request that the Examiner adduce substantial evidentiary support for those rejections as well in accordance with the requirements of the Administrative Procedures Act.

IV. CONCLUSION

The Examiner has failed to establish a prima facie case of obviousness against independent claims 17, 47 and 48 because neither the Persson Patent, the Ross Publication nor the AAPA, teach or even suggest, “at least one box...enclosing master and slave means for projecting two light beams” as recited by these claims. Furthermore, as conceded by the Examiner, there is insufficient evidentiary basis upon which to ground a Section 103 rejection against claims 18, 19, 42, 45, 47 and 48. Therefore, the Examiner’s obviousness rejection of these claims is additionally untenable and must be withdrawn.

For all of the above reasons, claims 17-42, 45, 47 and 48 are in condition for allowance and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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